

We claim:

1. A system comprising means for processing financial data, wherein a declarative specification language is employed in the programming of such system in order to describe financial instruments.
2. The system of claim 1, wherein said language uses a set of basic building blocks known as "financial event templates".
3. The system of claim 2, wherein each financial event template represents one basic financial element and also represents all the state information associated with such financial element.
4. The system of claim 2, wherein a particular declarative specification represents a specific type of financial instrument by specifying how the financial component specifications relate to each other to describe such financial instrument.
5. The system of claim 4, wherein said declarative specification represents the "commercial terms" (the set of state information necessary to represent all of the financially relevant data for the given instrument) of such type of financial instrument.
6. The system of claim 2, wherein parameterization of a declarative specification represents one instance of the type of financial instrument defined by the specification, and further wherein such combination of the declarative specification and parameters defines the static representation of the instance of such financial instrument.
7. A process implemented within means for processing financial data that transforms static representation of a financial instrument as created in accordance with claim 6 into a timeline of inter-related event objects that is specific to the given static representation.
8. The process of claim 7, wherein said timeline of inter-related event objects is composed of basic financial building

blocks, known as "financial events or components", and constitutes in its entirety the financial event structure or macro structure of that particular financial instrument.

9. A process as described in claim 7, wherein the financial event structure of an instance of a financial instrument can always be exactly reproduced by the process defined in claim 7, given the static representation of said financial instrument.

10. A process implemented within means for processing financial data wherein either the static representation of a financial instrument in accordance with claim 6 or the financial event structure of a financial instrument in accordance with claim 7 can be made persistent or distributed over a network.

11. A system comprising data processing means wherein a generic traversal process is employed that can be applied to the macro structure of a financial instrument to implement one or more functions that produce results based on this information.

12. The system of claim 11, wherein each said function is implemented as a specific extension of said generic traversal process to generate a specified type of result.

13. The system of claim 12, wherein each traversal process is based on a well defined interface between the financial events contained in the financial event structure of a financial instrument and said traversal process.

14. The system of claim 13, wherein the action to be performed for each type of financial event is defined, in said specific traversal process, independently from the action for any other type of financial event.

15. The system of claim 13, wherein the overall result of applying a function specific traversal process to the financial event structure of a financial instrument is a combination of applying all individual financial actions to the respective financial events in a prescribed way.

16. The system of claim 11, wherein said traversal process is implemented via a double dispatch mechanism.

17. The system of claim 16, wherein said double dispatch mechanism selects the appropriate action for each financial event without predetermined knowledge of the overall referential structure of the financial event structure.
18. The system of claim 16, wherein a nested double dispatch mechanism initiated inside the action for a given financial event can select the appropriate action for any financial event referred to locally within the financial event.
19. The system of claim 18 wherein said nested double dispatch mechanism can be applied recursively to any level.